

Application No.: 10/823,489

Docket No.: JCLA12709-R

REMARKS

Claims 1, 15, 18 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter AAPA) in view of Bourdillon (U.S. Patent No.6, 552, 917). Claims 2-14, 16-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Bourdillon in further view of Huang (U.S. Patent No.6, 344, 979).

Applicant respectfully traverses the preceding rejections based on the following arguments and reconsideration of this application is respectfully requested.

Discussion of rejection to claims under 35 U.S.C. §103(a)

Claims 1, 15, 18 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter AAPA) in view of Bourdillon (U.S. Patent No.6, 552, 917).

In response thereto, applicant respectfully traverses the rejection based on the following arguments. To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine references teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

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As stated in lines 5-9 in paragraph [0004] in specification, the present application intends to resolve a problem occurred in AAPA (i.e. Fig.1); in other words, the present application minimizes ripple current of an output capacitor of a front-end DC/DC converter shown in AAPA. However, in Fig.3, in Bourdillon, if two of three switches S1-S3 are turned on concurrently, for example, S1 and S2, output current of secondary side of transformer T1 is not equal to the sum of currents passing through circuits 311 and 313, rather equal to the current passing one of circuits 311 and 313, which has a lower voltage load. Since there are only switches S1, D1, S2, D2 disposed between the secondary side and the output loads, the output current of the secondary side of the transformer only passes through the circuit having lowest voltage load among the circuits 311, 313 and 315. Accordingly, only circuit 313 has a current passing through its resistance load (i.e.R2), when S1 and S2 are turned on, and amount of the current is the same as if only S2 were turned on. Thus, to minimize ripple current of the secondary side of the transformer, Bourdillon needs to select the circuit having maximum output voltage among the circuits 311, 313 and 315 as the converter's output. Furthermore, in Bourdillon, non-concurrently turning on of switches S1, S1 and S3 doesn't benefit reducing the ripple current of the output capacitor of the front-end DC/DC converter, which is intended to be resolved by the present application.

Furthermore, from lines 2-7, in col.5, in Bourdillon, there is some overlap between the ON and OFF times of the sequential controlled switches in order to achieve soft-switching and prevent the converter from being unloaded. In contrast, in the present application, to minimize the aforementioned ripple current, a time delay synchronous control circuit as claimed in claims 1, 15 and 18, is employed to control timing of turning on the front-end converter and that of

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turning on the first buck converter and the second buck so as to prevent them from being concurrently turned on each other. Hence, as discussed in aforementioned underlined portion, since Bourdillon is incapable of resolving the problem which the present application intends to resolve, any artisan is not motivated to combine Bourdillon and AAPA. Additionally, even if Bourdillon and AAPA could be combined, this proposal combination still fails to teach, suggest or disclose the time delay synchronous control circuit as claimed in claims 1, 15 and 18. In other words, independent claims 1, 15, 18 and 22 are not rendered obvious by the combination of Bourdillon and AAPA because a prima facie case of obviousness is not well established, and thus patentable.

Regarding dependent claims 23-24, they should be patentable for the reason that they contain all limitations of their patentable base claim 22.

Claims 2-14, 16-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Bourdillon in further view of Huang (U.S. Patent No. 6, 344, 979).

In response thereto, applicant respectfully traverses the rejections based on the following arguments. By the same argument to claims 23-24, as claims 2-14, 16-17 and 19-21 are dependent claims, they should be patentable for the reason that they contain all limitations of their respective patentable base independent claims 1, 15 and 18.

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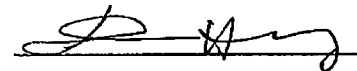
CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 1-24 are in proper condition for allowance and an action to such effect is earnestly solicited. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,
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